

Communication and Patient Motivation in Preventive Periodontics

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PERIODONTAL disease is a major chronic disease which has received little public health attention. The National Health Survey has reported that one of four American adults who still have their teeth has destructive periodontal disease; about two of four have gingivitis (1). Past early middle age periodontal disease is the major contributing cause to tooth loss. Further, it is an insidious disease which often has an asymptomatic early course, and it is extremely common among children.

Public health dentistry has been almost exclusively concerned with controlling caries. Although that goal has not yet been achieved, the road to conquering caries seems direct—through promotion of universal fluoridation of community water and widespread use of topical fluorides and therapeutic dentifrices. These measures have the potential to reduce caries incidence by two-thirds. Thus, the time is ripe to attack periodontal disease, the other major destroyer of good oral health.

The following discussion concerning communication and patient motivation in preventive periodontics presents some findings from recent

dental and social research, identifies leads for preventive periodontal programs, and points out areas in which further research is indicated.

Factors in Communication

Of course, in order to communicate effectively so that people will be motivated to take preventive action, there must be careful consideration of the message, the sender, the audience, and the method of sending the message.

What is the message in preventive periodontics? Greene's recent and exhaustive résumé yields two principal and proved measures for control of periodontal disease—toothbrushing at least twice a day and periodic prophylaxis by professional personnel (2).

That people should brush their teeth and have them cleaned professionally is a message without novelty. Rather, together with fluorides and fluoridation, it represents the main thrust of current and past dental health education, at least in regard to prevention of caries. The usefulness of these measures against periodontal disease has not been conspicuous in public health education, as some survey data on the public's understanding of the control of periodontal disease reveal. Lack of novelty is not the only drawback of the message. The behavior it urges is a boring daily routine that must be practiced faithfully to be effective. The message also urges seeking professional care twice or more every year for the rest of a person's life. Finally, the behavior urged is preventive, meant

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to forestall disease, and hence it is performed without the stimulus of current symptoms.

According to a 1959 survey of 1,862 adults by the National Opinion Research Center (NORC), as seen by the patient, the chief educator in the dental office is the dentist himself, but he does not often play that role. Of the respondents who asked for or got advice, almost all received it from the dentist rather than from the dental hygienist or the dental assistant. However, two-thirds of the respondents who had ever been to the dentist said they had never asked for advice on care of their teeth and gums. About half the respondents also denied receiving such advice without asking for it. Only 4 percent said they often requested such information; only 12 percent said they often got advice without asking for it.

We have no precise data about the other mainstay of present dental health education, the schools. We know from the recent national School Health Education Study that most school districts report giving dental health education in every grade from kindergarten through grade 12, and that few other health subjects get such emphasis. However, that same study reports pessimistic results in actual student dental behavior and even in basic dental knowledge (3).

Few States have put so much effort into dental health curriculum planning and evaluation as Tennessee, where the health and education departments have collaborated with the Tennessee Dental Association to produce and evaluate a sophisticated teacher's guide for dental health (4, 5). For the country as a whole, however, we know that many schools teach some dental health principles, but we do not know what they teach or how adequately.

Most of the mass media dental information is in the form of advertising. But, according to a 1965 NORC survey of 1,520 adults, people evince an ambivalence about what they hear and read on this subject. For example, almost nine of 10 respondents said they had seen or heard something about fluoride toothpaste; yet only half of these people thought such toothpastes were actually better than those without fluoride. Therefore, it seems that half the public remains skeptical despite a barrage of messages concerning the benefits of fluoride toothpaste.

Messages can be transmitted to patients in dental offices, to adults in the community, and to children in the schools. And the means for transmitting them range from lectures to civic groups, to posters and exhibits, to classrooms, to pamphlets and books, to various mass media.

The foregoing factors indicate that periodontics communication embraces many and various individual components. The possible combinations of such components are even more numerous. A result of this diversity is that the available amount of actual research data evaluating dental health communication is limited. To our knowledge, neither studies of the amount or effectiveness of dental education by auxiliaries nor adequate national studies of the level of dental information possessed by school children have been or are being conducted.

Available Data

The surveys of the National Opinion Research Center provide some insights as to what American adults do to take care of their gums, what they believe about gum disease, and how important periodontal health is to them.

Four of five of the 1,862 respondents in the 1959 survey said they knew what pyorrhea (the lay term for periodontal disease) was and gave an adequate definition for it. When asked what they believed caused gums to become diseased, one-third said they did not know or gave a vague or irrelevant answer. However, two-thirds gave answers which were usually right, although they ranged from direct and indirect causes to systemic and local conditions. Forty-two percent related gum disease specifically to lack of oral cleanliness.

In the 1965 survey, the 1,520 adults were asked how much good they thought toothbrushing did in preventing or cutting down tooth decay and gum disease. Although a majority replied "much" for both conditions, as shown below people were more likely to consider toothbrushing effective against decay than against gum disease.

Reply	Percent	
	Tooth decay	Gum disease
Much.....	71	55
Some.....	24	30
Little.....	3	6
None.....	1	4
Don't know.....	1	5

The link between gum disease and tooth health was acknowledged by more than 90 percent of the respondents in the 1959 survey, who agreed with the general statement that "diseases of the gums can affect the condition of the teeth." And 72 percent agreed with the statement that "you can help keep your gums in good condition if you have your teeth cleaned regularly in a dental office."

Those who said they knew what pyorrhea was were also asked whether it could be cured. Here, the general view was optimistic: 75 percent said yes, only 12 percent said no, and 13 percent said they did not know. Some who said yes qualified their answers: 12 percent said the disease must be treated early and 2 percent agreed that it could be cured if all the teeth were extracted.

Further information on how American adults perceive gum disease was obtained from a national survey by the University of Michigan in 1963. The data clearly showed that the respondents tended to view periodontal disease rather than tooth decay as serious but also as less likely to occur to themselves. Those who had five or more teeth were asked how serious it would be if they got tooth decay or "gum trouble": 37 percent said tooth decay would be serious, but 64 percent believed that gum trouble would be serious. On the other hand, these respondents were not as likely to believe that they were as susceptible to gum trouble as to tooth decay: 60 percent said tooth decay was likely to happen, but only 25 percent considered themselves susceptible to gum trouble. Considerably more respondents replied "don't know" to questions concerning seriousness and susceptibility of gum disease than to similar questions for tooth decay. This result indicates that the public is more knowledgeable about tooth decay than periodontal disease.

A perception that there was little likelihood of having periodontal problems was also evident in the 1959 NORC survey. The respondents were asked how much dental work they would need if they went to the dentist and what kind it would be. Only a small percentage mentioned "treatment of the gums."

As to what people do about preventing and coping with gum disease, the same survey asked "What, if anything, do you do to take care of your teeth or gums?" The respondents' replies,

shown below, reveal that almost all were carrying out half of the periodontal message, that is, toothbrushing. (Percentages total more than 100 because of multiple answers.)

<i>Reply</i>	<i>Percent</i>
Nothing, not much-----	4
Brushing, daily or occasionally-----	72
Diligent brushing-----	18
Occasional dental visits-----	5
Regular dental visits-----	9
Avoid candy or other sweets-----	3
Massage or treat gums-----	9
Drink milk, take vitamins-----	9
Use mouth wash-----	19
Other -----	3

The National Health Survey report on volume of dental visits (6) shows that gum treatment accounted for only 3.6 percent of the total dental visits during a 1-year period. This service was the smallest proportion among the seven types of services separately categorized. Cleaning of teeth accounted for 13.6 percent of the visits, while 37.8 percent of the visits included fillings.

To probe a little into why people brush their teeth, the 1959 NORC survey included this statement and question: "People have different reasons for brushing their teeth. Why do you brush your teeth?" The answers suggested that a belief that toothbrushing protects the teeth from decay is the strongest motivation for toothbrushing, followed by the beliefs that it enhances personal comfort, makes the mouth and person feel good, and that it combats bad breath. Only 3 percent said that they brush to protect their gums (?).

Data on frequency of brushing were obtained from the 1965 NORC survey. The majority (60 percent) of the persons who still had their teeth stated that they brushed twice a day or more, 32 percent brushed once a day, and only 8 percent brushed less than once a day.

The traditional admonition to brush soon after eating was clearly not being followed by the respondents in the 1959 NORC survey: 55 percent stated "before going to sleep," 44 percent reported "after waking but before breakfast," 42 percent stated "after breakfast," and 20 percent said "before going out." Few brushed after snacks. These responses suggest that toothbrushing is geared to a personal hygiene regimen

which is focused around retiring and waking rather than immediately after eating.

To sum up survey findings on beliefs and attitudes concerning care of teeth and gums:

1. People believe they can and actually do take care of their teeth by brushing them regularly.

2. Most people do not use prophylaxes as the prime means of caring for their teeth.

3. Brushing is not aimed at caring for gums, even though people are more likely to perceive periodontal disease rather than tooth decay as serious.

4. Most people do not see gum disease as a likely threat to themselves.

Delivering the Message

Data on methods for delivering the preventive periodontics message are sparse. Although school teachers, dental health educators, public health dentists, and dentists and hygienists in private practice do transmit information about periodontal disease, only a few scientific studies to assess the impact of periodontal education have been performed.

Robinson and associates recently reported a 4-year study of 392 Tennessee high school students (8). Through comparisons between control and experimental groups, the authors concluded that health education succeeded in improving dental health knowledge but not behavior. However, the amount and kind of education was rather limited:

A total of one hour of dental health education was given (to experimental subjects) by a dental hygienist during each of four annual visits to the school . . . (this) included lectures, demonstrations, and films on the proper method of toothbrushing . . . , on etiology of dental caries and periodontal disease, on the value of a prophylaxis, and on the role of nutrition. . . . Individual chairside instructions were given at the time of prophylaxis.

The researchers concluded: "If a child has not learned proper dental health habits during the early years, it is highly unlikely that dental health education will substantially alter preformed habits." In light of the Tennessee study, with its particular education situation, race, and socioeconomic group, and with its particular kind and amount of health education, this pessimistic conclusion is unwarrantedly general.

The results of health education in an Oklahoma study were more hopeful.

The Oklahoma Department of Health conducted an experimental periodontal communication study in 1960 in three high schools (9). One school received a high-intensive program, another a low-intensive program, and the third school served as a control. Several oral hygiene and periodontal disease scores were computed 1 year apart, in a before and after design, for all participants. Generally, the final results showed that the students in the schools receiving the experimental programs had less periodontal disease and lower debris and hygiene scores than those in the control school. Calculus scores for the experimental schools did not rise, but for the controls they rose considerably.

The following summary, closely paraphrased from the Oklahoma report, describes the successful methods used in the two schools given the experimental programs.

In the high-intensive program, a variety of personnel, channels, and approaches was used. A faculty committee of teachers who normally had contact with students on health matters—the guidance counselor and the homemaking, biology, and physical education teachers—planned the stimulation of student projects and the integration of the dental health education program into the regular curriculum. Additionally, a committee of five students was appointed by the student council to handle student activities.

Activities included articles in the school and city newspapers, dental health posters prepared by the art classes, distribution of American Dental Association leaflets, original spot announcements over the school's loudspeakers, and the use of films and exhibits.

The major efforts to reach all students with basic dental health facts were (a) a special assembly program, (b) student-led discussions, and (c) the distribution of a student-prepared leaflet. The assembly program featured a film, "Something to Chew On," and a talk by a representative of the local dental society. Student-led discussions were planned by the student council, with local dentists serving as resource persons. As a climax to the educational program, student council members gave each student a leaflet, "Key to Good Teeth," which was

written and illustrated by a committee of honor students from the junior and senior English classes.

Emphasis on dental health was a part of many classroom discussions. In the English and journalism classes, advertising of dental products was analyzed. Dental health movies were shown in physical education classes. Speech, business, and chemistry classes incorporated dental health content. Borrowed exhibits were used in biology. The homemaking class made posters on diet for the cafeteria bulletin board. Civics classes discussed water purification and fluoridation. Mathematics classes considered the use of statistics in dental information. Even the band instructor stressed good oral hygiene by relating mouth cleanliness to good instrument care.

Two health education consultants from the health department worked closely with the program and visited the school approximately once a month. They also served as an extension of the teaching staff in working with groups of students. Many members of the teaching staff devoted extra time to the program, especially the guidance counselor who served as faculty coordinator.

In the low-intensive program, the faculty was told the purpose of the study and asked to cooperate by distributing materials to the students. Activities in dental health education were increased beyond the usual, but no effort was made to include students or faculty in planning the program or in developing materials. Instead, the principal and a health educator planned the program, which included the distribution of literature and use of announcements, exhibits, and films.

In the control school, the purposes of the study were explained at a faculty meeting, but the school was not asked to schedule special dental health activities (9).

Conclusions

From our review of the data and the literature, it seems that more emphasis is needed on purpose—prevention of periodontal disease—in the message of toothbrushing and prophylaxis. We may be able to change current behavior if we can also communicate the extent, and hence high susceptibility, of peri-

odontal disease—that it attacks the majority of young adults, that after middle age it is almost universal, and that after middle age it is the main cause of loss of teeth through destruction of the supporting and surrounding structures of the teeth.

The data also indicate that periodontal disease can be curbed in the ages in which it often begins, as in the Oklahoma study. Thus, the schools can play a major role in successfully transmitting the antiperiodontal disease message by using, within a concentrated period, a variety of techniques of persuasion. Notable among such techniques are peer group involvement in carrying the message, group decision making, and continual reinforcement of the message by various groups. Of course, to take advantage of the school environment, dental health educators must provide careful planning and energetic consultation by both personal action and tested and effective educational materials.

The studies of one nondental channel of education suggests the feasibility of testing other such channels. Mass media have not been used to their full potential for dental health education, nor have auxiliary personnel in the dental offices. We know from the National Health Survey (10) that more than 40 percent of the entire adult American population is a captive audience of the dentist and his staff at least once a year. Evidence from a National Opinion Research Center survey, previously cited, clearly suggests that typically this opportunity for patient education is not exploited.

We have much to learn concerning effective ways to motivate people toward preventive dental care in general and toward preventive periodontics in particular. These ways can be determined by research efforts in many directions—testing specific periodontal messages, senders of the messages, audiences, situations, and methods of sending the messages.

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Grants for Training in Anesthesiology

Grants totaling \$1 million for training physicians in anesthesiology have been awarded to 30 teaching hospitals in 21 States and Puerto Rico. These grants are part of a national effort to improve patient care by expanding research and training in anesthesiology.

In 1 year anesthesia is required in approximately 25 million surgical procedures and for 4.5 million obstetrical patients. New, complex surgical techniques confine teams of anesthesiologists to one operation for a period in which they otherwise could have attended several patients.

In most hospitals and clinics the services of anesthesiologists are required outside the operating room. Anesthesiologists supervise post-operative and other types of intensive care units, and they are expected to use modern analgesic techniques to relieve the pain of chronically ill patients. Resuscitation and other aspects of inhalation therapy are also the anesthesiologist's responsibility.

Anesthesiology in relation to the care of obstetrical patients is a subspecialty which is only beginning to be developed. Serious problems for both the mother and child are associated with anesthesia. Obstetricians have charged that anesthesia care in delivery rooms is inadequate. The failure to improve techniques has been attributed to the shortage of qualified anesthesiologists and to the inadequacy of their training.

The new anesthesiology clinical training grants provide support for up to 3 years of full-time training leading to eligibility for examination by the American Board of Anesthesiology. The grant funds pay stipends, allowances for dependents, part of the salaries of instructors, and costs of special courses, permanent equipment, and supplies.

The physician-trainees must have finished their internship and be American citizens or have been admitted to the United States for permanent residence. Another requirement is an unequivocal commitment to pursue a career in anesthesiology in its fullest, modern sense, which far exceeds the administration of an anesthetic.

Under the training grant program, physicians who go directly from internship into a residency in anesthesiology will receive stipends of \$6,500 the first year and annual \$500 increases each of the following 2 years, plus allowances for dependents.

Physicians who have been practicing at least 4 years will receive higher stipends, and the length of their training will depend on their experience, professional background, and other factors.

Guidelines and other information about the anesthesiology clinical training program may be obtained from the Program Administrator, Clinical Anesthesiology Training, National Institute of General Medical Sciences, Public Health Service, Bethesda, Md. 20014.